Environmentally Responsible

Tangible Result Driver – Dave Nichols, Director of Program Delivery

MoDOT takes great pride in being a good steward of the environment, both in the construction and operation of Missouri's transportation system and in the manner in which its employees complete their daily work. The department strives to protect, conserve, restore and enhance the environment while it plans, designs, builds, maintains and operates a complex transportation infrastructure.

Environmentally Responsible

Percent of projects completed without environmental violation

Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Kathy Harvey, State Design Engineer

Purpose of the Measure:
This measure tracks environmental violations. MoDOT projects must comply with several environmental laws and regulations. In order to be in compliance, MoDOT makes commitments throughout the project development process that must be carried forward during construction and maintenance. In addition, the various permits obtained for projects also contain specific requirements for compliance. MoDOT as an agency must also comply with the environmental laws and regulations as we go about our daily work in all areas of the organization.

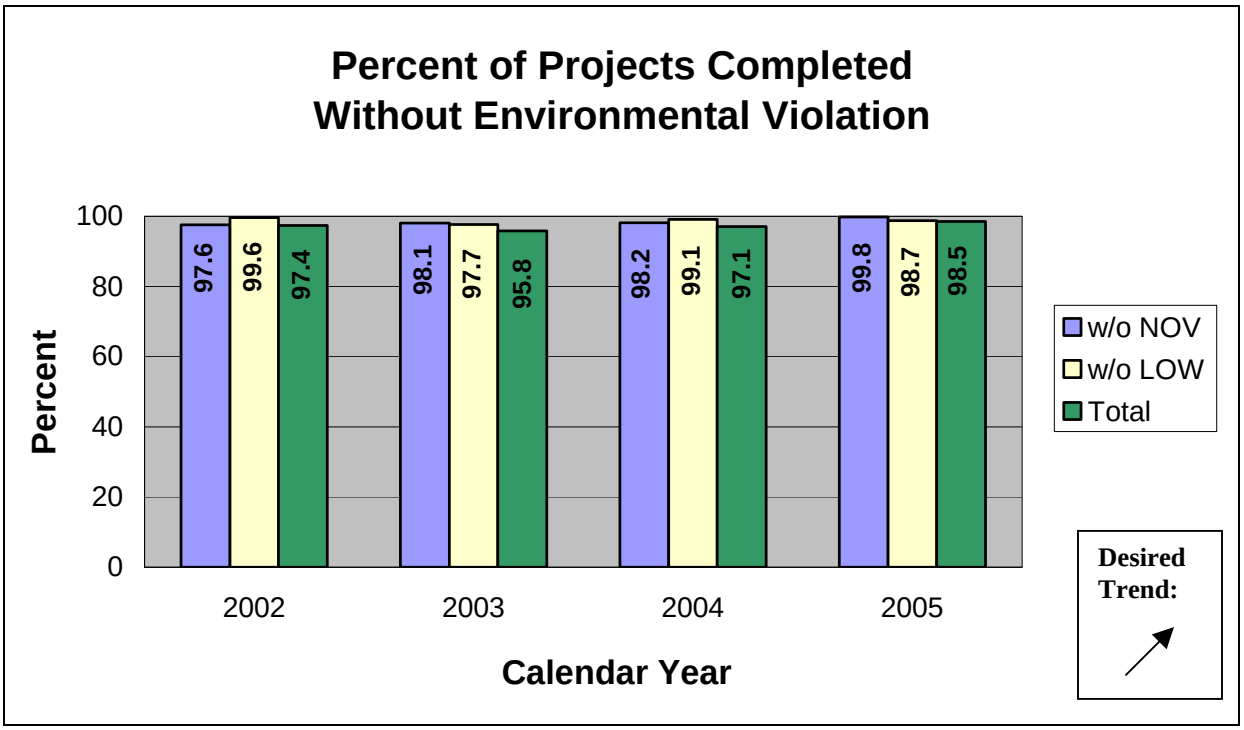
If a violation is noted, it can result in either a Letter of Warning (LOW) or a Notice of Violation (NOV) to MoDOT. Letters of Warning can also be received as simply that, a warning to MoDOT of a special circumstance to be aware of, or for a situation that needs to be monitored so that a violation does not occur. For that reason, LOWs will never be eliminated, but should be kept to a minimum. However, it is unacceptable to the department to have a NOV.

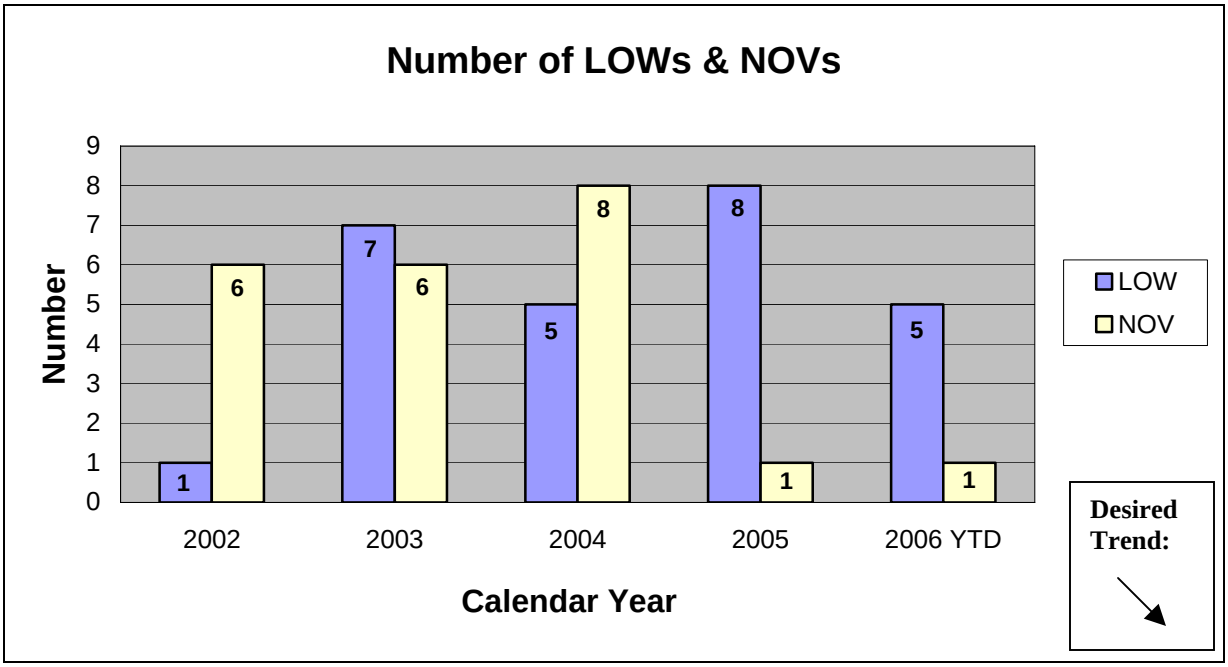
Measurement and Data Collection:
Both LOWs and NOVs are written correspondence to MoDOT from regulatory agencies, which are tracked in a MoDOT database by location or project number, as appropriate. Where tracked by project, the violations received may span several years. The first chart is based on a calendar year of construction projects reported to be completed during that year and the number of violations received on those projects over the life of the project. The second chart is a report by calendar year of the LOWs and NOVs received by the department for any activity.

Improvement Status:
The first graph shows a relatively level trend line for the past four years, while the second graph shows a significant decline in the total number of NOVs received in 2005, and that positive trend is continuing in 2006.

For the first two quarters of 2006, MoDOT has received one NOV and five LOWs. The NOV was for a contaminant discharge at a maintenance facility. Two of the LOWs were for failing to submit manifest summary reports in a timely manner; one was for a maintenance lot issue; one was for discharging contaminants from a construction project and the final one was for issues associated with hazardous waste labeling and storage.

Based on the number of warnings received the past few years for the maintenance lots, the department conducted an inspection of each maintenance lot. The results of these inspections have been summarized in draft report presented to leadership of the various divisions impacted. These divisions will be responding to findings and the report will be revised during the next quarter. At that time, action plans, if appropriate, will be developed.


Percent of Projects Completed
Without Environmental Violation
Percent
100
80
60
40
20
0
97.6
99.6
97.4
98.1
97.7
95.8
98.2
99.1
97.1
99.8
98.7
98.5
2002
2003
2004
2005
Calendar Year
w/o NOV
w/o LOW
Total
Desired
Trend:


Number of LOWs & NOVs
Number
9
8
7
6
5
4
3
2
1
0
1
6
7
6
5
8
8
1
5
1
2002
2003
2004
2005
2006 YTD
Calendar Year
LOW
NOV
Desired
Trend:

Environmentally Responsible

Number of projects MoDOT protects sensitive species or restores habitat

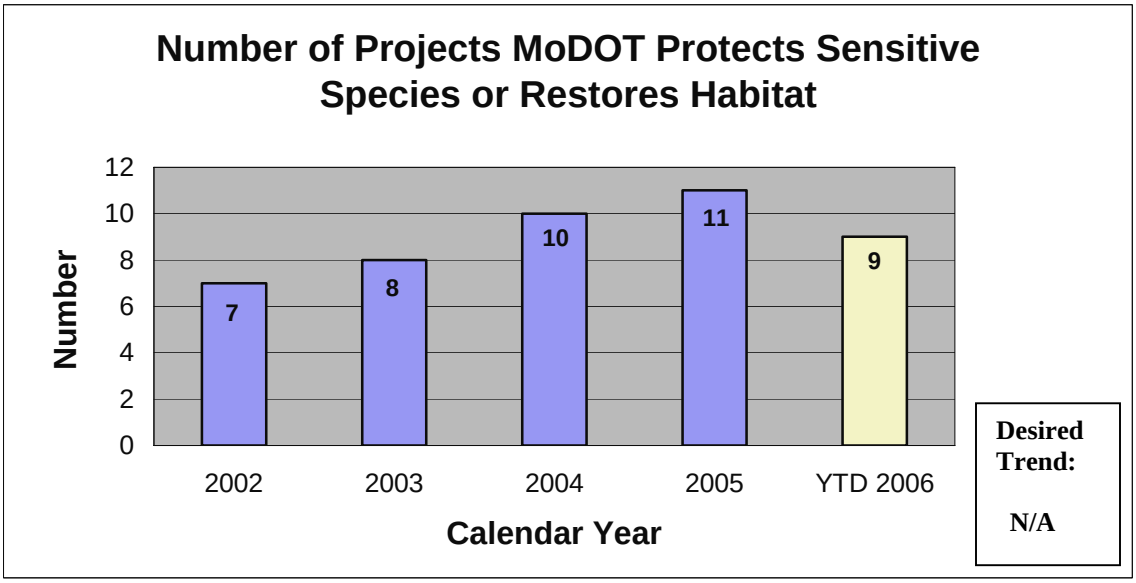
Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Gayle Unruh, Environmental & Historic Preservation Manager

Purpose of the Measure:
Missouri is home to many rare species of plants and animals, some of which are on the federal endangered species list. The Endangered Species Act of 1973 prohibits harm or harassment of these species. Avoiding or minimizing harm to these species and protecting or restoring their habitat is a fundamental obligation of this organization. Avoidance and/or protection are the first goals of our efforts, but under circumstances where avoidance cannot be achieved restoration of habitat is a minimum acceptable result.

Measurement and Data Collection:
This measure is tracked annually by calendar year. On all MoDOT projects, the department investigates and informs the US Fish and Wildlife Service of any activity in the vicinity of a known threatened or endangered species or critical habitat. Through this consultation with them, primarily through letters, MoDOT has the data to report on this measure. Because this measure focuses on projects that protect or restore sensitive habitats that could not initially be avoided, many MoDOT projects are not included in this data.

Improvement Status:
There is no desired trend with this measure; the number reported will fluctuate depending on the size of MoDOT's construction program each year, type of projects being constructed, location and the ability to make adjustments to avoid impacts on sensitive species or their habitat.

During the first half of 2006, there were nine projects where MoDOT protected or restored sensitive species or habitat. These included the gray bat (twice), Tumbling Creek cave snail, Indiana bat (twice), pallid sturgeon, peregrine falcon, Niangua darter and protected mussels.



Environmentally Responsible

Ratio of acres of wetlands created compared to the number of acres of wetlands impacted

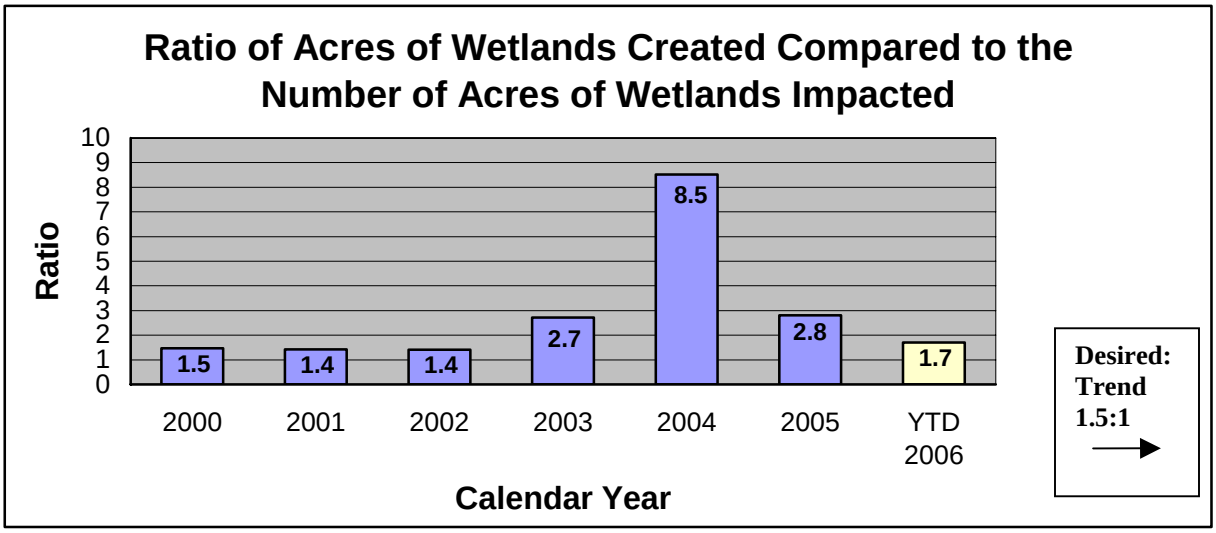
Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Gayle Unruh, Environmental & Historic Preservation Manager

Purpose of the Measure:
Wetlands are a valuable resource in Missouri, having beneficial functions such as wildlife habitat, flood storage and water quality improvement. In addition to these benefits, it is required in the Clean Water Act that impacts to wetlands are avoided, minimized or that wetlands are recreated when a wetland is destroyed during a transportation project. The national goal set by the FHWA for recreating wetland is to construct 1.5 acres of wetland for every 1.0 acre of wetland impacted. Recreating wetlands at this ratio helps to offset the lost beneficial functions during the time it takes for a wetland to develop. This measure helps ensure that MoDOT is doing its part to maintain wetlands in Missouri.

Measurement and Data Collection:
Acres of project impacts taken from Clean Water Act permits compared to acres of wetland constructed, as shown in roadway design plans or by calculating the actual wetland areas recreated by MoDOT, or wetland mitigation purchased from a commercial wetland bank. Impacts may occur in a different year from the mitigation, so for the purposes of this measure, the timeframe for the reporting is when the mitigation construction is complete based on a calendar year.

Since this measure is also tracked by FHWA, MoDOT contacted states that are successful at meeting the 1.5 to 1 ratio. Most of the states queried said that the biggest factor in meeting the ratio is in the use of wetland mitigation banks. They had greater control over achieving their target ratios and more ecologically successful wetland mitigation. MoDOT has a statewide umbrella wetland mitigation banking agreement. Two proposed wetland banks are in the review stages with the regulating agencies.

Improvement Status:
So far in 2006, MoDOT improved its ratio by replacing wetlands at a rate of 1.7 to 1. Although this represents only two mitigation projects built this year, statewide training targeting the interpretation and attention paid to wetland development plans was conducted with construction inspectors and resident engineers to help achieve this improvement over previous years. MoDOT is placing all mitigation on as-built plans to assure we do not have to mitigate for encroachments on our wetland mitigation projects.



Environmentally Responsible

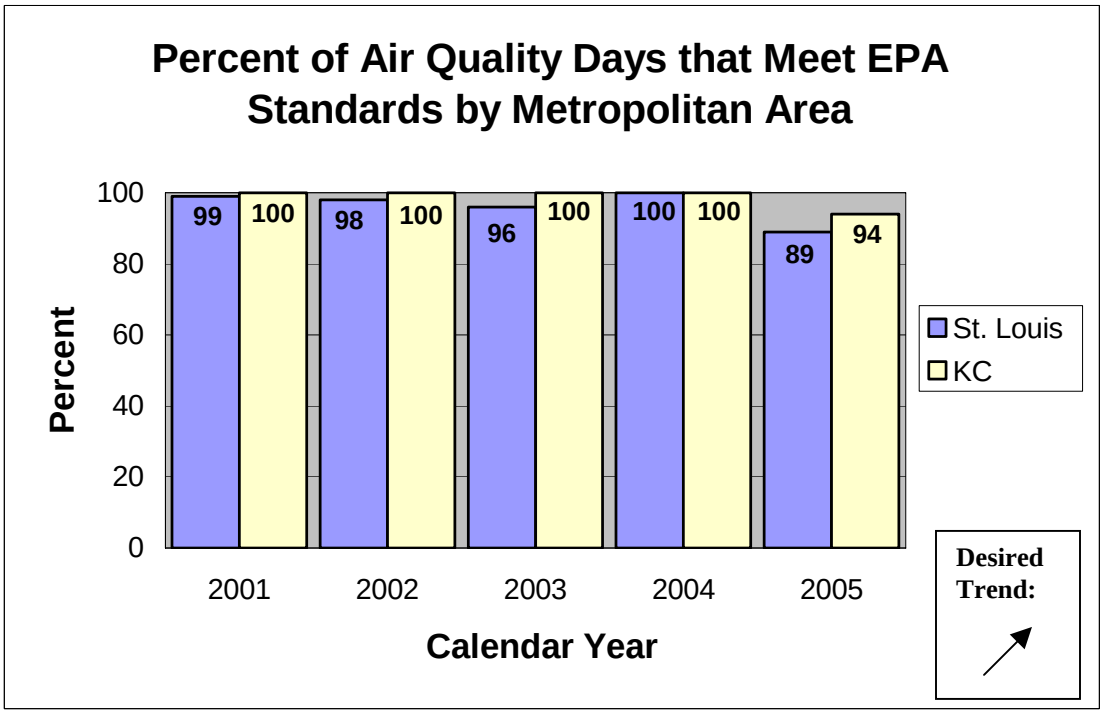
Percent of air quality days that meet Environmental Protection Agency standards by metropolitan area

Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Eric Curtit, Long Range Transportation Planning Coordinator

Purpose of the Measure:
This measure tracks MoDOT's role in improving the air quality of Missouri's metro areas. The Environmental Protection Agency (EPA) approves state plans to improve air quality. MoDOT makes every effort to design and build roads that meet air quality standards and do not violate the EPA-approved plans.

Measurement and Data Collection:
EPA establishes several air quality standards for the United States. The ground level ozone standard affects Missouri. Ozone readings are collected in Kansas City and St. Louis during the ozone season – April through October. The data contained in the table below reflects the available percentage of days, by metro area, that met the EPA's ground-level ozone standard. The data for the 2005 ozone season is now included.

Improvement Status:
MoDOT's efforts coupled with milder than normal weather in 2004 contributed to 100 percent positive air quality days as measured by EPA standards. Changes to more strict EPA standards and warmer than normal weather during the 2005 ozone season have contributed to a reduction in the percentage of positive air quality days. MoDOT continues to serve on the Air Quality Forum Committee in Kansas City and the Air Quality Advisory Committee in St. Louis. Staff attend monthly meetings to review these committees' programs and ensure that both regions continually work to improve the air quality for Missouri citizens. Both Kansas City and St. Louis have implemented programs that help with traffic congestion, enhance Missouri's bicycle/pedestrian programs and ensure transit agencies provide needed services.



Environmentally Responsible

Percent of alternative fuel consumed

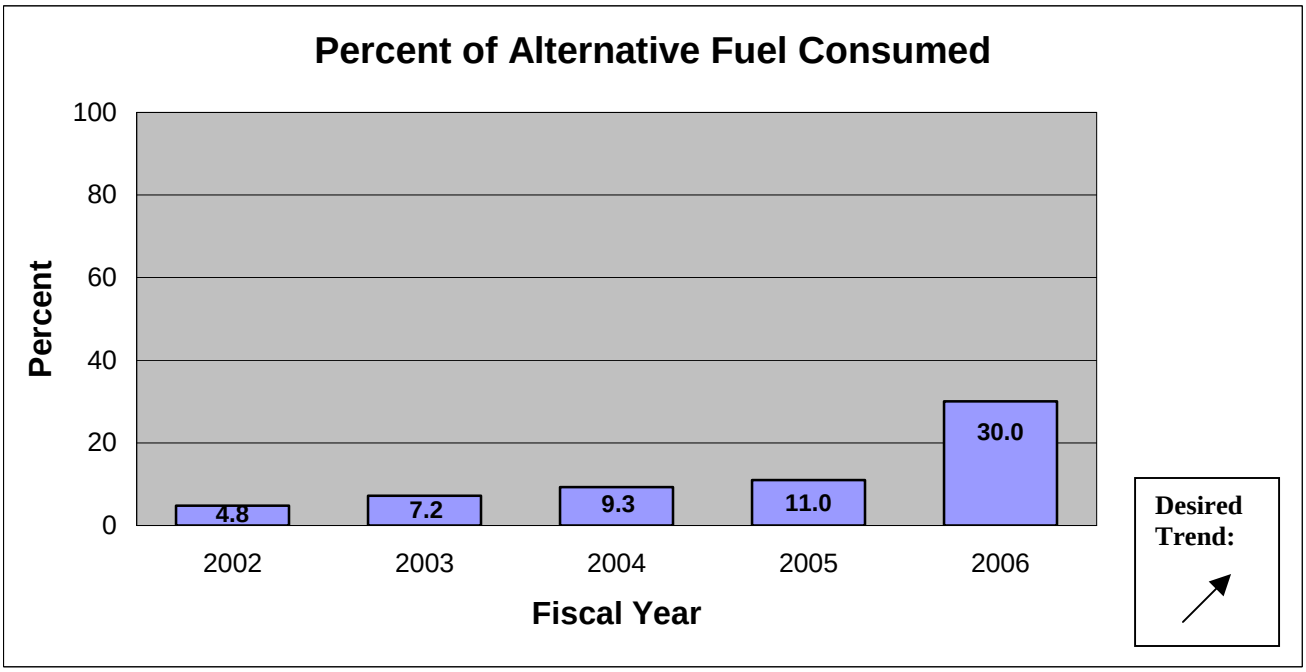
Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Dave DeWitt, Deputy Administrative Officer

Purpose of the Measure:
This measure tracks the use of alternative fuels. It shows MoDOT's contribution toward environmental responsibility and conservation of resources.

Measurement and Data Collection:
Alternative fuel is E-85 and biodiesel. When a user pumps fuel into a MoDOT vehicle or piece of equipment, that usage by gallon and by fuel type is captured in the SAM II system. Reports are generated to extract the number of gallons used from that system.

Improvement Status:
There was a significant increase in the usage of alternative fuels from 11.0 percent in FY 2005 to 30.0 percent in FY 2006. However, the usage varied from 47.7 percent in the first quarter to 5.1 percent in the third quarter. The decrease in the third quarter is a result of discontinuing the use of biodiesel during the winter months. This was done to ensure there wouldn't be equipment operational issues due to fuel quality. Where available, all districts resumed purchasing biodiesel on April 1, 2006. A quality assurance program has been implemented to minimize the fuel quality issues. The biodiesel bid specification has been modified to require the use of certified B100 mixtures. Testing equipment has been purchased for the districts. The equipment obtains fuel samples at different levels within a tank and measures cloud point. MoDOT's central office staff has met with district staff to provide instruction on using the testing equipment and to provide updates on the bid specification.

The department currently operates two E-85 bulk fuel stations and has added a new 6,000-gallon tank in District 6. MoDOT is awarding a contract to install a tank in District 4 and plans to install a tank in District 7 in FY 2007.



Environmentally Responsible

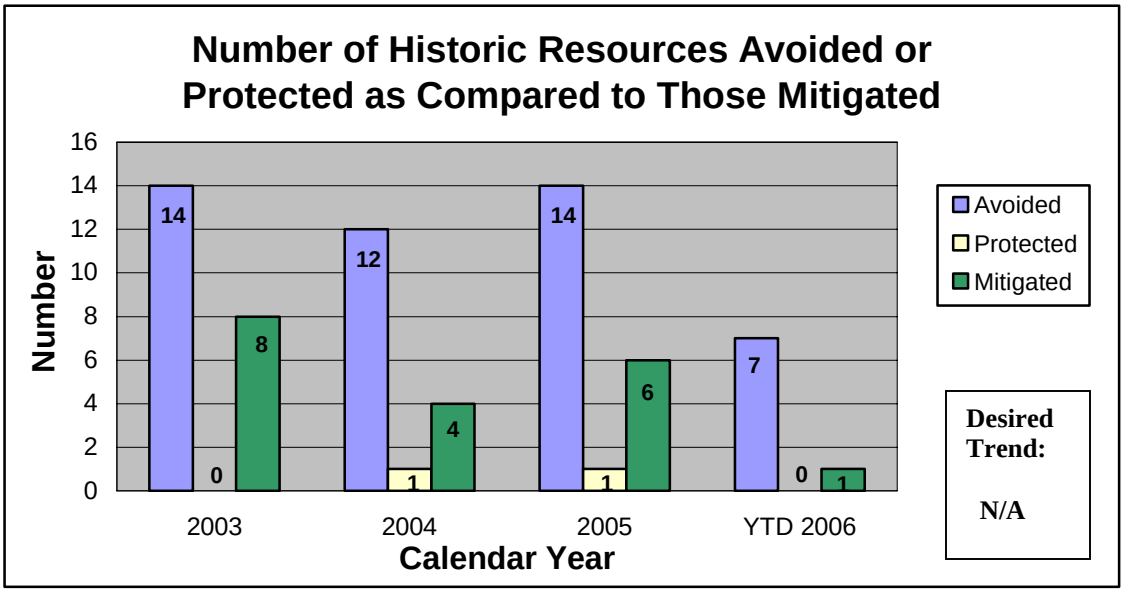
Number of historic resources avoided or protected as compared to those mitigated

Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Bob Reeder, Historic Preservation Coordinator

Purpose of the Measure:
Federal historic preservation laws relating to federally-funded projects, gaining public and agency support for particular projects, and general environmental stewardship require MoDOT to avoid, minimize or mitigate project impacts to historic buildings and bridges whenever feasible. Compiling information about project impacts to important cultural resources provides a measure of MoDOT's success at avoiding, protecting or mitigating project impacts to important cultural resources.

Measurement and Data Collection:
Data collection begins at the approved Conceptual Plans stage. As project design plans and right of way plans are prepared by the district, department staff track the number of historic resources in project footprints and the number of resources that can be avoided or protected by MoDOT revising the design of a project versus the number of resources MoDOT can not avoid and must be mitigated. The data include only historic resources identified as potentially affected by projects after the conceptual plan stage. The data do not include historic resources avoided during early project planning or those avoided during consideration of different alignments during NEPA studies.

Improvement Status:
Early project design was able to avoid impacts to all but only one historic property. Of the eight historic properties identified at the conceptual plan stage as being impacted by projects, MoDOT was able to subsequently redesign the project in the final stages to avoid impacts to seven of the resources. The only significant historic resource that could not be avoided was a historic house that had project impacts mitigated through the preparation of detailed photographic and historical documentation. This measure has no overall desired trend. For any year, data for the measure will vary due to the number of projects in the MoDOT program and the specific nature of those projects. However, the overall effectiveness of MoDOT's historic preservation efforts is reflected by all of MoDOT's activities resulting in the required mitigation of project impacts to only one historic resource during the first two quarters of 2006.



Environmentally Responsible

Number of trees planted compared to number of trees removed

Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Jerry Hirtz, Technical Support Engineer, Construction & Materials

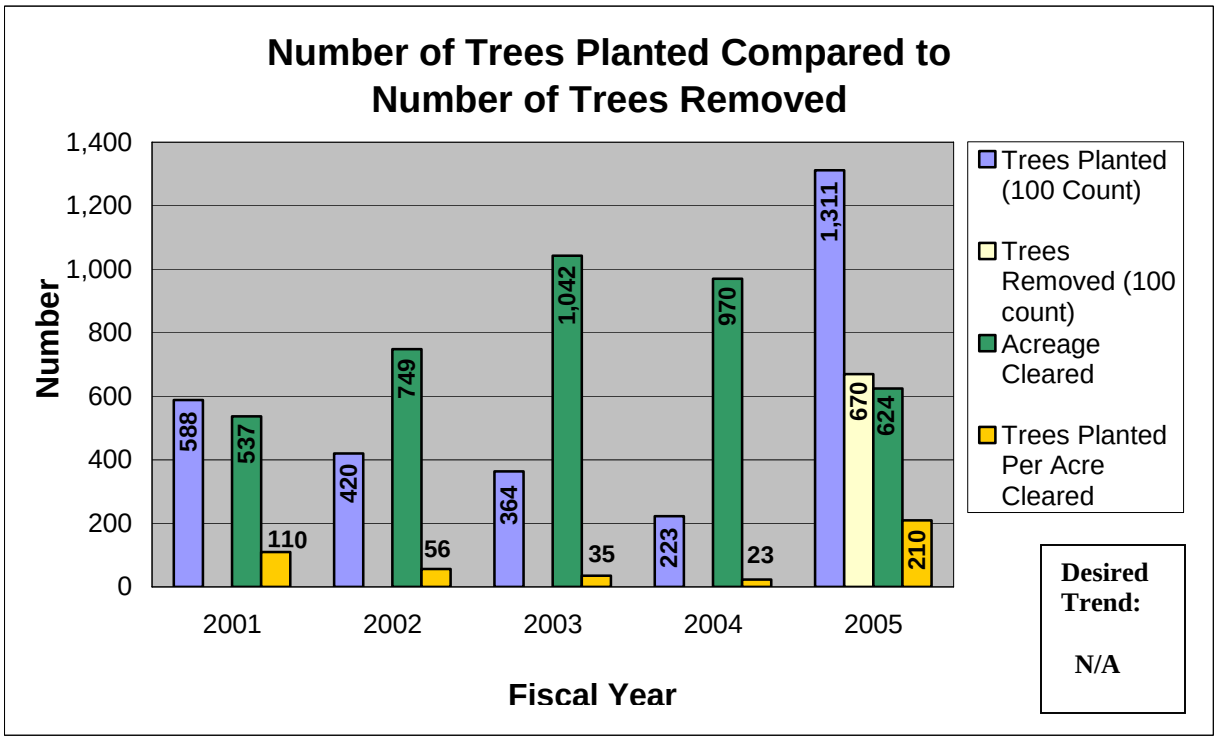
Purpose of the Measure:
This measure tracks MoDOT's effort to replace trees removed as a result of clearing operations on its construction projects.

Measurement and Data Collection:
MoDOT has committed to plant two trees for each six-inch-or-larger tree removed by construction operations. This measure is an annual measure. YTD counts cannot project a yearly total as tree removal numbers vary with the letting of grading contracts. MoDOT documents acreage cleared and a record is maintained of trees ordered each year for spring planting. This measure is amended to compare trees planted to trees removed.

Improvement Status:
MoDOT and the Missouri Department of Conservation have agreed, in principle, to a new tree-distribution and planting program that will maximize the number of trees MoDOT plants to compensate for those it removes on construction projects. This new arrangement will counter difficulties associated with limited amounts of right of way on which to plant; clear zone requirements, mowing operations, and late-in-the-year plantings.

Under the agreement, MoDOT would compensate MDC approximately $140,000-$150,000 per year for the production costs of 500,000 trees. MDC will distribute the trees to not-for-profit organizations, other state agencies for reforestation projects, and for Arbor and Earth Days.

The result will be a clear demonstration of MoDOT's environmental responsibility, an effective and efficient use of resources, and will result in a higher survival rate for those trees being planted.



Environmentally Responsible

Number of tons of recycled/waste materials used in construction projects

Result Driver: Dave Nichols, Director of Program Delivery
Measurement Driver: Joe Schroer, Field Materials Engineer

Purpose of the Measure:
This measure tracks MoDOT's efforts to be environmentally conscious while being fiscally responsible through the use of recycled/waste material when applicable.

Measurement and Data Collection:
The number of tons of recycled/waste material used in construction projects is measured through MoDOT's construction management database which tracks material incorporated into projects. Data is collected on an annual basis due to the seasonal nature of the construction.

Improvement Status:
In 2006, the asphalt mixtures placed have contained on average five percent recycled asphalt pavement and overall have contained approximately 12 percent recycled or waste materials. Demand for some products has increased beyond the immediate supply for some waste materials forcing contractors to explore new sources of material. One example of this is mineral filler for Stone Mastic Asphalt mixtures. Traditional ground limestone became limited in supply and contractors began using fly ash for this purpose. As fly ash became scarce in some locations, cement kiln dust was able to fill the supply gap. Thus, material demand resulted in contractors gaining experience with waste materials never before used in asphalt mixtures in Missouri. This will result in more usage of these materials in the future.

Total numbers for 2006 are expected to exceed 2005, given only half the year is through and the busiest construction time is just beginning.